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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,937	12/17/2001	Ted Everson	1748X/50671	2928
500	7590	06/16/2004	EXAMINER	
SEED INTELLECTUAL PROPERTY LAW GROUP PLLC			LA, ANH V	
701 FIFTH AVE			ART UNIT	
SUITE 6300			PAPER NUMBER	
SEATTLE, WA 98104-7092			2636	

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,937

Applicant(s)

EVERSON ET AL

Examiner

Anh V La

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. The drawings are objected to because in figures 1-5, blank blocks need to be labeled. For example, block 3 needs to be labeled as –sensor unit--.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 15, 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Sanderson.

Regarding claim 1, Sanderson discloses a fuel cell system comprising a fuel cell stack 1 with single fuel cells stacked together in a fuel cell housing and a fire or temperature detection (column 2, lines 45-65).

Regarding claim 2, Sanderson discloses a monitoring system, a sensor unit located inside the fuel cell housing, and a voltage or current source (figure 1, col. 2, lines 45-65).

Regarding claim 3, Sanderson clearly discloses the sensor unit comprising a device for detecting signals emitted by a heat source.

Regarding claim 15, Sanderson clearly discloses the sensor unit comprising a device that generates a temperature-sensing output voltage (fig. 1).

Regarding claim 16, Sanderson clearly discloses a thermocouple (col. 2, line 45).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson in view of Clinton.

Regarding claims 4, 7-13, Sanderson discloses all the claimed subject matter as set forth above in the rejection of claim 2, but does not disclose the detection system comprising an impedance (claim 4), the detection system comprising a loop-forming means and a pair of electric conductors (claim 7), one end of the pair of conductors being connected to the loop-forming means and the other end of the pair of conductors being connected to the voltage or current source (claim 8), a meltable electrically-insulating material (claim 9), a resistor (claim 10), an end of the pair of conductor being connected to the monitoring system (claim 11), when the insulating material melts at any position, one electric conductor being movable into electric contact with the other conductor (claim 12), a linear thermal detector (claim 13). Clinton teaches the use of a detection system comprising an impedance (col. 3, lines 15-30), the detection system comprising a loop-forming means and a pair of electric conductors (figures 1-5), one end of the pair of conductors being connected to the loop-forming means RF and the

other end of the pair of conductors being connected to the voltage or current source 44, a meltable electrically-insulating material (abstract, col. 1, lines 5-35, col. 3, lines 10-55), a resistor RF, an end of the pair of conductor being connected to the monitoring system (30), when the insulating material melts at any position, one electric conductor being movable into electric contact with the other conductor (abstract, col. 1, lines 5-35, col. 3, lines 10-55), a linear thermal detector (abstract). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include the detection system comprising an impedance, the detection system comprising a loop-forming means and a pair of electric conductors, one end of the pair of conductors being connected to the loop-forming means and the other end of the pair of conductors being connected to the voltage or current source, a meltable electrically-insulating material, a resistor, an end of the pair of conductor being connected to the monitoring system, when the insulating material melts at any position, one electric conductor being movable into electric contact with the other conductor, a linear thermal detector to the system of Sanderson as taught by Clinton for the purpose of effectively detecting temperature inside the fuel cell.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson in view of Macaione.

Regarding claim 14, Sanderson discloses all the claimed subject matter as set forth above in the rejection of claim 2, but does not disclose a quartz thermometer. Macaione teaches the use of a quartz thermometer (col. 1, lines 3-19). It would have

been obvious at the time the invention was made to a person having ordinary skill in the art to include a quartz thermometer to the system of Sanderson as taught by Macaione for the purpose of effectively detecting temperature inside the fuel cell.

7. Claims 18-19, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson in view of Margiott.

Regarding claims 18, 21, Sanderson discloses a method for detecting fire or elevated temperatures in a fuel cell stack in a fuel cell housing 1 comprising generating an alarm signal via a sensor unit sensitive to elevated temperatures inside the fuel cell housing the sensor unit being located inside the fuel cell housing (col. 2, lines 45-65, col. 3, lines 1-30, col. 4, lines 10-50). Sanderson does not disclose switching operation of the fuel cell stack to a secure state (claim 18) and shutting down the fuel cell system if the sensor unit generating an alarm signal (claim 21). Margiott teaches the use of a switching operation of a fuel cell stack to a secure state and shutting down a fuel cell system if a sensor unit generating an alarm signal. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include switching operation of the fuel cell stack to a secure state and shutting down the fuel cell system if the sensor unit generating an alarm signal to the system of Sanderson as taught by Margiott for the purpose of protecting the fuel cell.

Regarding claim 19, Sanderson discloses a monitoring system indicating the fire or elevated temperature if the sensor unit generates an alarm signal.

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8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson in view of Clinton as applied to claim 4 above, and further in view of Peterson.

Regarding claims 5-6, Sanderson in view of Clinton discloses all the claimed subject matter as set forth above in the rejection of claim 4, but does not disclose the impedance exhibiting a negative or positive coefficient of resistance with temperature and a thermistor. Peterson teaches the use of an impedance exhibiting a negative or positive coefficient of resistance with temperature and a thermistor (col. 1, lines 10-23, col. 2, lines 1-15). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include the impedance exhibiting a negative or positive coefficient of resistance with temperature and a thermistor to the system of Sanderson (modified by Clinton) as taught by Peterson for the purpose of effectively detecting temperature inside the fuel cell.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson in view of Clinton as applied to claim 13 above, and further in view of Nakamura.

Regarding claim 17, Sanderson in view of Clinton discloses all the claimed subject matter as set forth above in the rejection of claim 13, but does not disclose the linear thermal detector utilizing gas expansion. Nakamura teaches the use of a detector utilizing gas expansion (col. 7, lines 1-16). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include the linear

thermal detector utilizing gas expansion to the system of Sanderson (modified by Clinton) as taught by Nakamura for the purpose of effectively detecting temperature inside the fuel cell.

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson in view of Margiott as applied to claim 18 above, and further in view of Aoyama.

Regarding claim 20, Sanderson in view of Margiott discloses all the claimed subject matter as set forth above in the rejection of claim 18, but does not disclose the switching comprising disrupting or pausing a supply of medium containing hydrogen to the stack if the sensor unit generates an alarm signal. Aoyama teaches the use of a switching comprising disrupting or pausing a supply of medium containing hydrogen to the stack if the sensor unit generates an alarm signal. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include switching comprising disrupting or pausing a supply of medium containing hydrogen to the stack if the sensor unit generates an alarm signal to the system of Sanderson (modified by Margiott) as taught by Aoyama for the purpose of effectively protecting the operation of the fuel cell.

11. Claims 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson in view of Margiott as applied to claim 18 above, and further in view of Clinton.

Regarding claims 22-27, Sanderson in view of Margiott discloses all the claimed subject matter as set forth above in the rejection of claim 18, but does not disclose an impedance of the sensor unit changes rapidly by at least one order of magnitude if the temperature inside the fuel cell housing rises above a temperature critical for fuel cell operation (claim 22), an impedance of the sensor unit rising rapidly by at least one order of magnitude if the temperature inside the fuel cell housing rises above a temperature critical for fuel cell operation (claim 23), an impedance of the sensor unit dropping rapidly by at least one order of magnitude if the temperature inside the fuel cell housing rises above a temperature critical for fuel cell operation (claim 24), melting of insulating material (claim 25), upon melting the insulating material, one or each of the conductors moving into electric contact with the other conductor and an alarm signal being generated (claim 26), and therefore a short circuit being produced (claim 27). Clinton teaches the use of an impedance of the sensor unit changes rapidly by at least one order of magnitude if the temperature inside the fuel cell housing rises above a temperature critical for fuel cell operation (col. 3, lines 10-55), an impedance of the sensor unit rising rapidly by at least one order of magnitude if the temperature inside the fuel cell housing rises above a temperature critical for fuel cell operation (col. 3, lines 10-55), an impedance of the sensor unit dropping rapidly by at least one order of magnitude if the temperature inside the fuel cell housing rises above a temperature critical for fuel cell operation (col. 3, lines 10-55), melting of insulating material (abstract, col. 1, lines 5-35, col. 3, lines 10-55), upon melting the insulating material, one or each of the conductors moving into electric contact with the other conductor and an alarm

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signal 70 being generated (fig. 1-5), and therefore a short circuit being produced (fig. 1-5). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include an impedance of the sensor unit changes rapidly by at least one order of magnitude if the temperature inside the fuel cell housing rises above a temperature critical for fuel cell operation, an impedance of the sensor unit rising rapidly by at least one order of magnitude if the temperature inside the fuel cell housing rises above a temperature critical for fuel cell operation, an impedance of the sensor unit dropping rapidly by at least one order of magnitude if the temperature inside the fuel cell housing rises above a temperature critical for fuel cell operation, melting of insulating material, upon melting the insulating material, one or each of the conductors moving into electric contact with the other conductor and an alarm signal being generated, and therefore a short circuit being produced detector to the system of Sanderson (modified by Margiott) as taught by Clinton for the purpose of effectively detecting temperature inside the fuel cell.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh V La whose telephone number is (703) 305-3967. The examiner can normally be reached on Mon-Fri from 9:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffery Hofsass can be reached on (703) 305-4717. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ANH V. LA
PRIMARY EXAMINER

Anh V La
Primary Examiner
Art Unit 2636

AI
June 01, 2004